CFS-B5LMK2

SERVICE MANUAL

East European Model

Ver 1.0 1999. 05

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MF-B5MK2-117

SPECIFICATIONS

Frequency range
- FM: 65.0 - 108 MHz
- MW: 531 - 1,602 kHz
- LW: 153 - 279 kHz
- SW: 5.95 - 18 MHz

Aerials
- FM/SW: Telescopic antenna
- MW/LW: Built-in ferrite bar

Recording system
- 4-track, 2-channel stereo

Frequency response
- 70 - 10,000 Hz

Speakers
- Full range: 10 cm (4 inches) dia., 2.8 ohms cone type × 2

Output
- Headphones jack (stereo minijack), for 16 - 68 ohms impedance headphones

Maximum power output
- 2.5 W + 2.5 W

Battery life

FM recording
Sony R20P: approx. 16 hours
Sony LR20 alkaline: approx. 36 hours
Playback
Sony R20P: approx. 8 hours
Sony LR20 alkaline: approx. 21 hours

Power requirements
- 230 V AC, 50 Hz
- 9 V DC, six R20 (size D) batteries

Power consumption
- AC 14 W

Dimensions
- Approx. 500 × 155 × 164 mm (w/h/d) (19 3/4 × 6 1/8 × 6 1/2 inches) incl. projecting parts and controls, not incl. handle

Mass
- Approx. 2.7 kg (5 lb. 15 oz.) not incl. batteries

Supplied accessory
- Mains lead (1)

Design and specifications are subject to change without notice.

RADIO CASSETTE-CORDER

MICROFILM

SONY®

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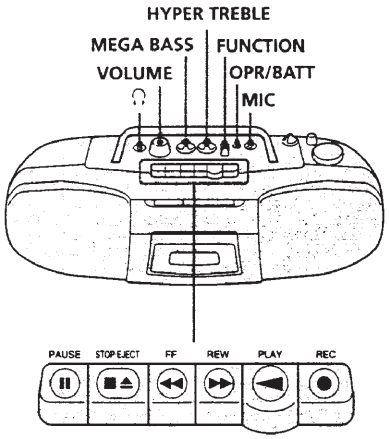
SAFETY-RELATED COMPONENT WARNING!!

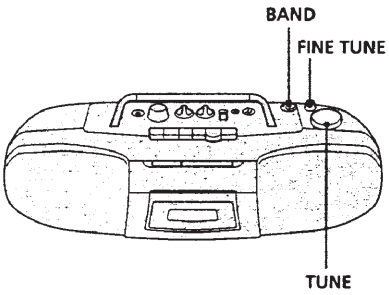
COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Location of controls

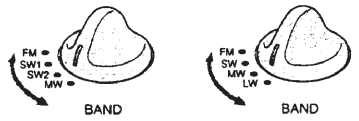




Listening to the radio

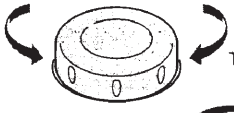
1 Set FUNCTION to RADIO.

2 Set BAND to the band you want.



CFS-B5SMK2 CFS-B5LMK2

3 Tune to the station you want.



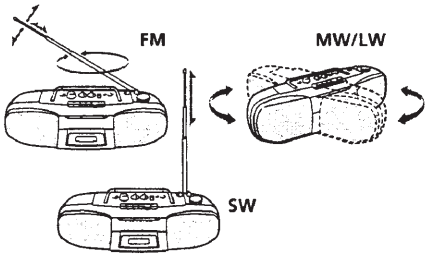
To tune in an SW band, use FINE TUNE for better SW reception.

To turn off the radio

Set FUNCTION to TAPE (RADIO OFF) .

To improve broadcast reception

Reorient the aerial for FM. Reorient the player itself for MW/LW. For SW, pull the aerial vertically.



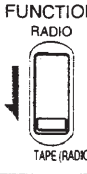
Tips

- To listen through headphones, connect the headphones to the ∩ (headphones) jack.
- For best results, move the player away from a TV.

Playing a tape

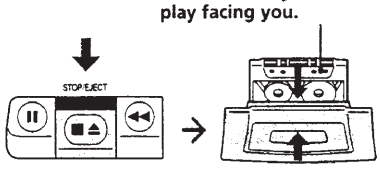
Use TYPE I (normal) tape only.

1 Set FUNCTION to TAPE (RADIO OFF) .

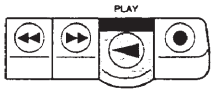


2 Insert a recorded tape.

With the side you want to play facing you.



3 Press ◄ PLAY.



To	Press
stop playback	■⏏ STOP/EJECT
fast-forward or rewind the tape	◄◄ FF or ►► REW
pause playback	❚❚ PAUSE Press this button again to resume playback .

Adjusting the bass and treble

Turn MEGA BASS clockwise to enhance the low tone, and turn HYPER TREBLE clockwise to enhance the high tone.

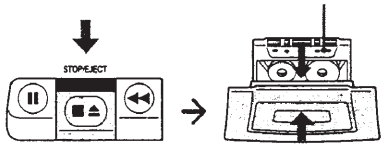
Use TYPE I (normal) tape only.

Recording

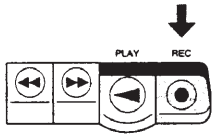
1 **To record from the radio**
Tune to the station you want.
To record from the built-in microphone
Set FUNCTION to TAPE (RADIO OFF).

2 Insert a blank tape.

With the side you want to record facing you.



3 Press ● REC.
◄PLAY is depressed automatically.

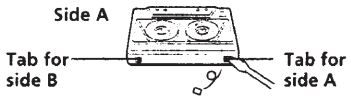


To	Press
stop recording	■⏏ STOP/EJECT
pause recording	❚❚ PAUSE Press this button again to resume recording.

Tips
- For best results, use the AC power source.
- Adjusting the volume or audio emphasis will not affect the recording level.

Notes
- While recording from the built-in microphone, you cannot monitor the sound through the headphones.
- You cannot press ● REC during playback. To record during playback, stop the tape once and then press ● REC.
- If the MW or LW programme makes a whistling sound, set ISS (Interference Suppress Switch) (at the rear) to the position that most decreases the noise. Normally set the Switch to "2". (CFS-B5LMK2 only)

Notes on cassettes
- Break off the cassette tab from side A or B to prevent accidental recording. If you want to reuse the tape for recording, cover the tab hole with adhesive tape.

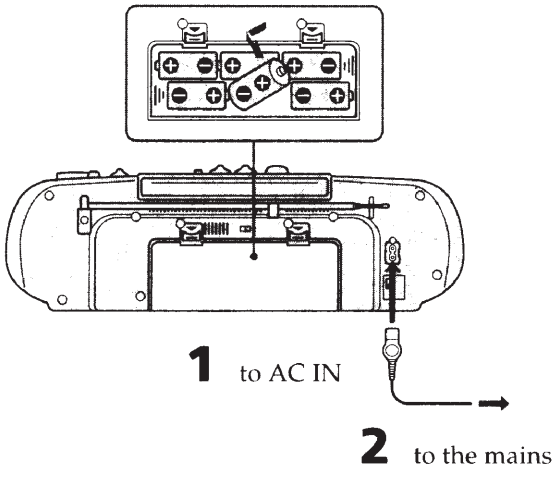


- The use of cassettes with more than 90 minutes of play time is not recommended except for long, continuous recording or playback.

Choosing Power Sources

To use the player on AC power source (mains)

Connect the supplied mains lead to the AC IN jack.



To use the player on batteries

Insert six R20 (size D) batteries (not supplied) into the battery compartment.

Tip

For customers supplied with an AC plug adaptor, use it if the plug of the mains lead does not match your mains.

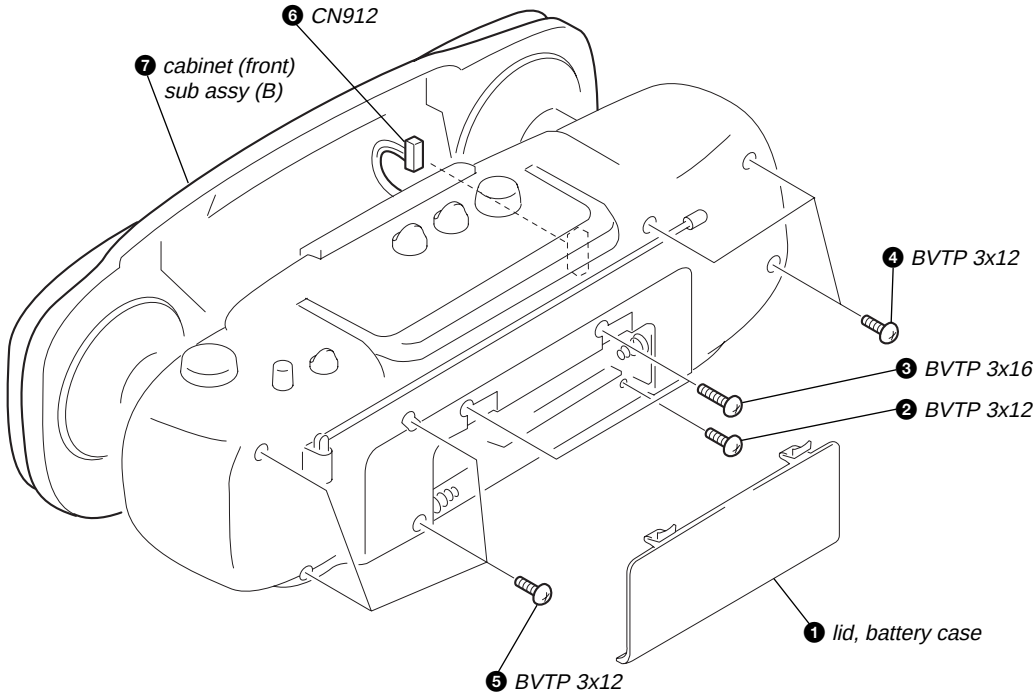
Notes
- To use the player on batteries, disconnect the mains lead from the player.
- Replace the batteries when the OPR/BATT indicator dims or when the player stops operating. Replace all the batteries with new ones.

SECTION 2
DISASSEMBLY

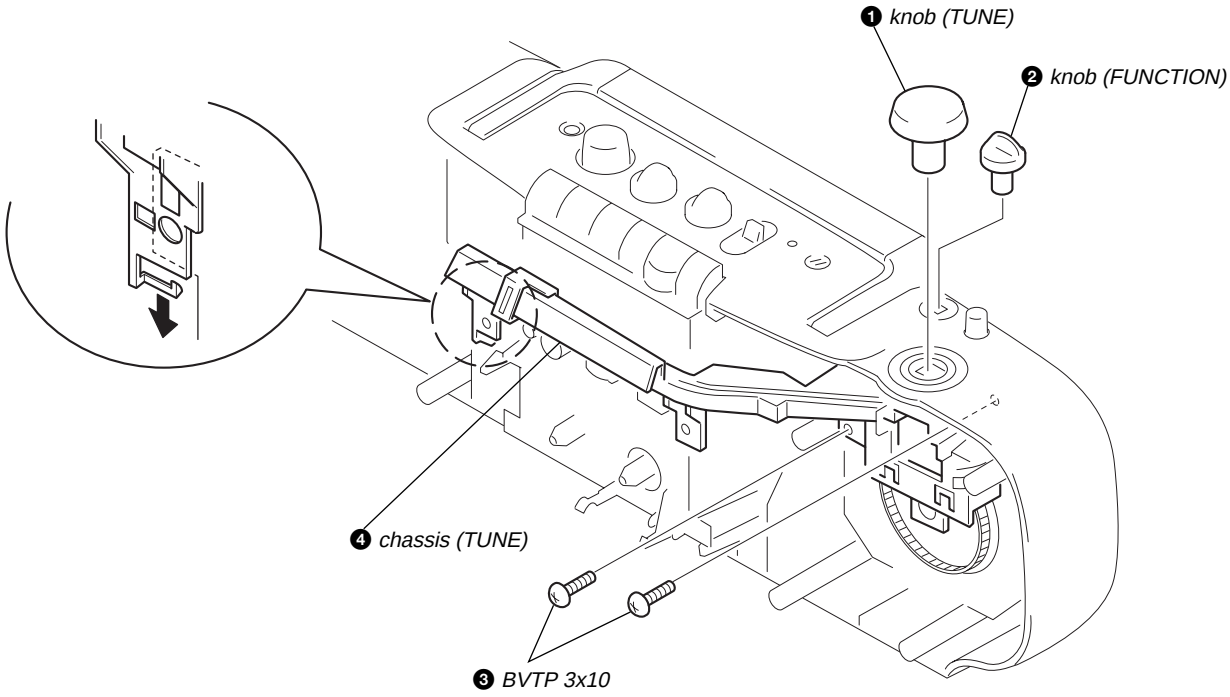
• The equipment can be removed using the following procedure.
Set ➡ Cabinet (front) sub assy (B) ➡ Chassis (TUNE) ➡ Tape mechanism block ➡
Tuner, AC, Second board ➡ Audio, Microphone, ISS board

Note : Follow the disassembly procedure in the numerical order given.

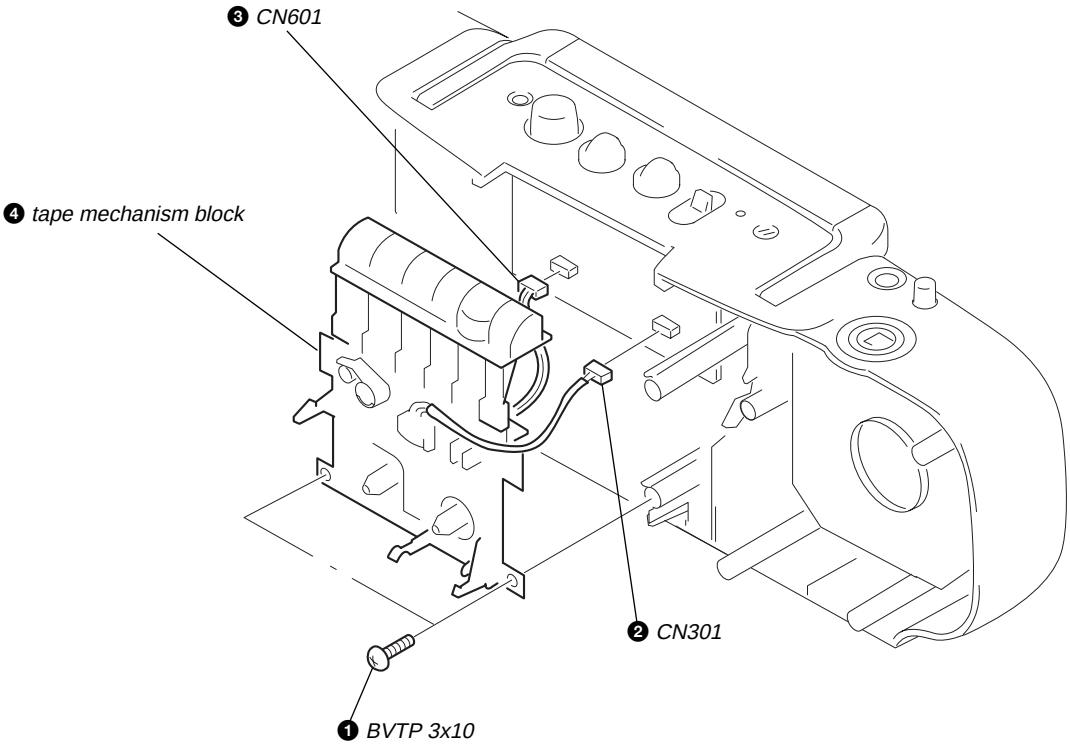
2-1. CABINET (FRONT) SUB ASSY (B)



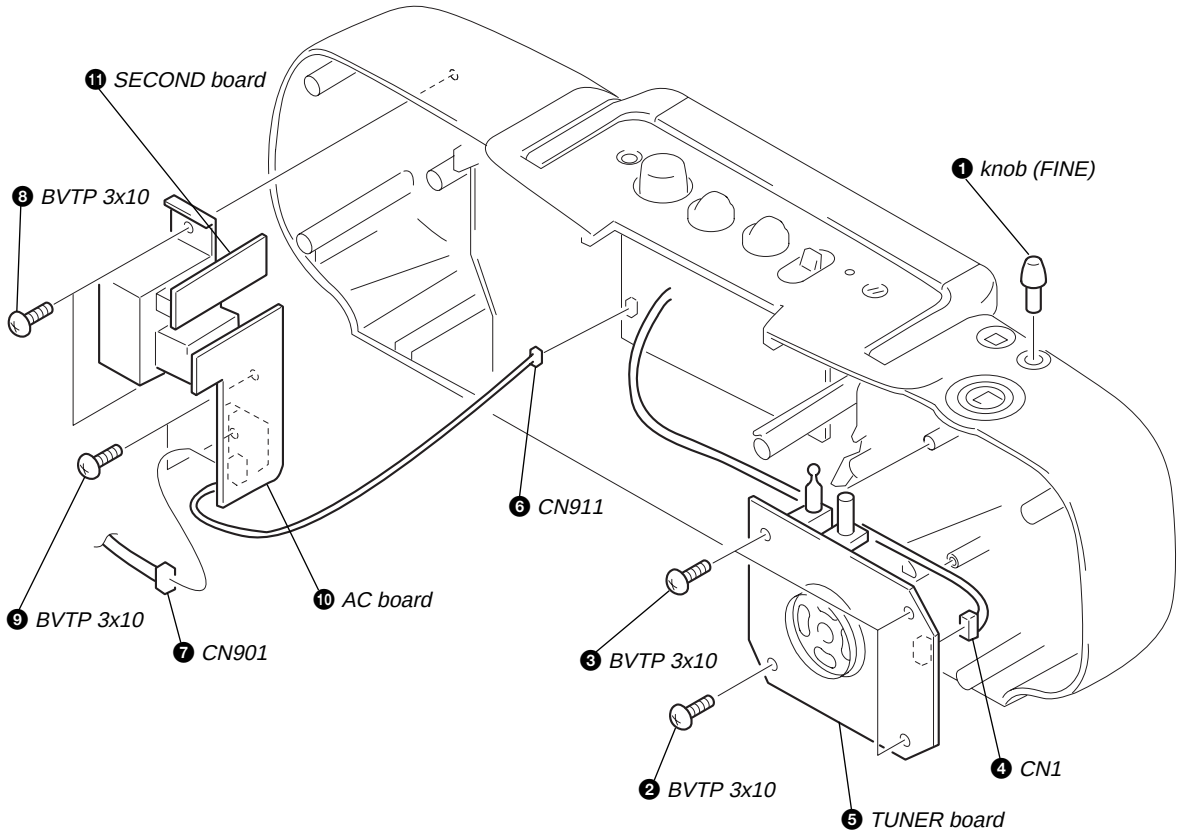
2-2. CHASSIS (TUNE)



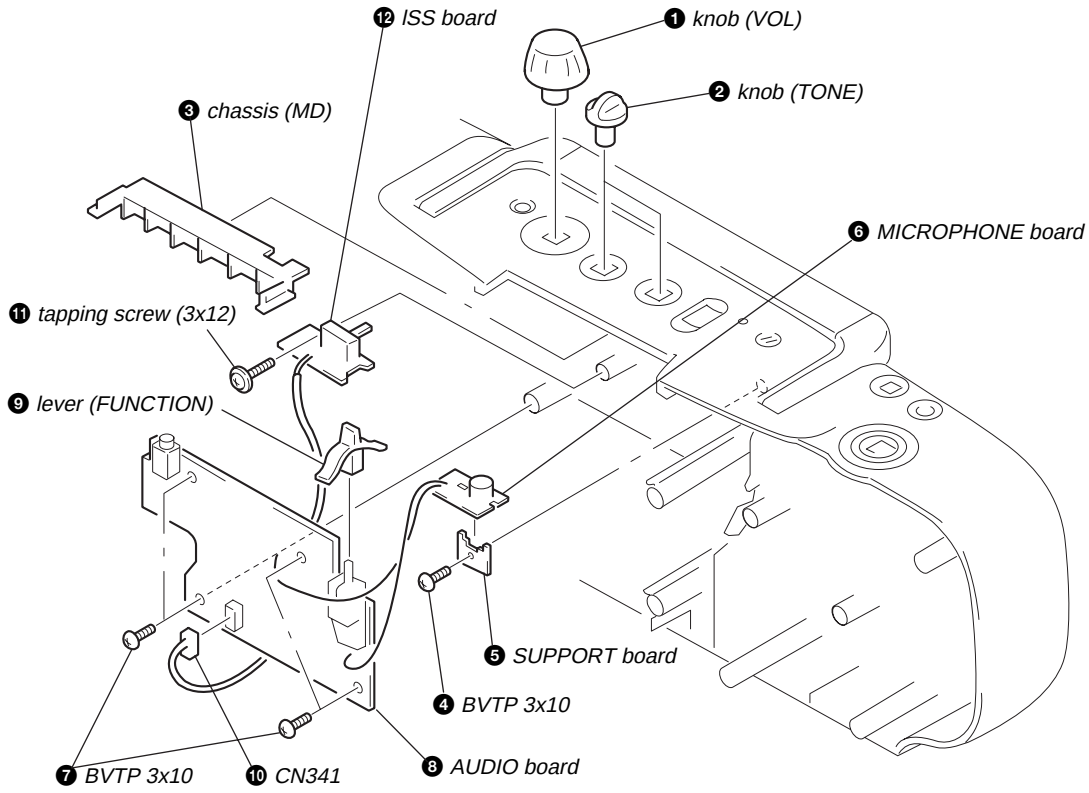
2-3. TAPE MECHANISM BLOCK



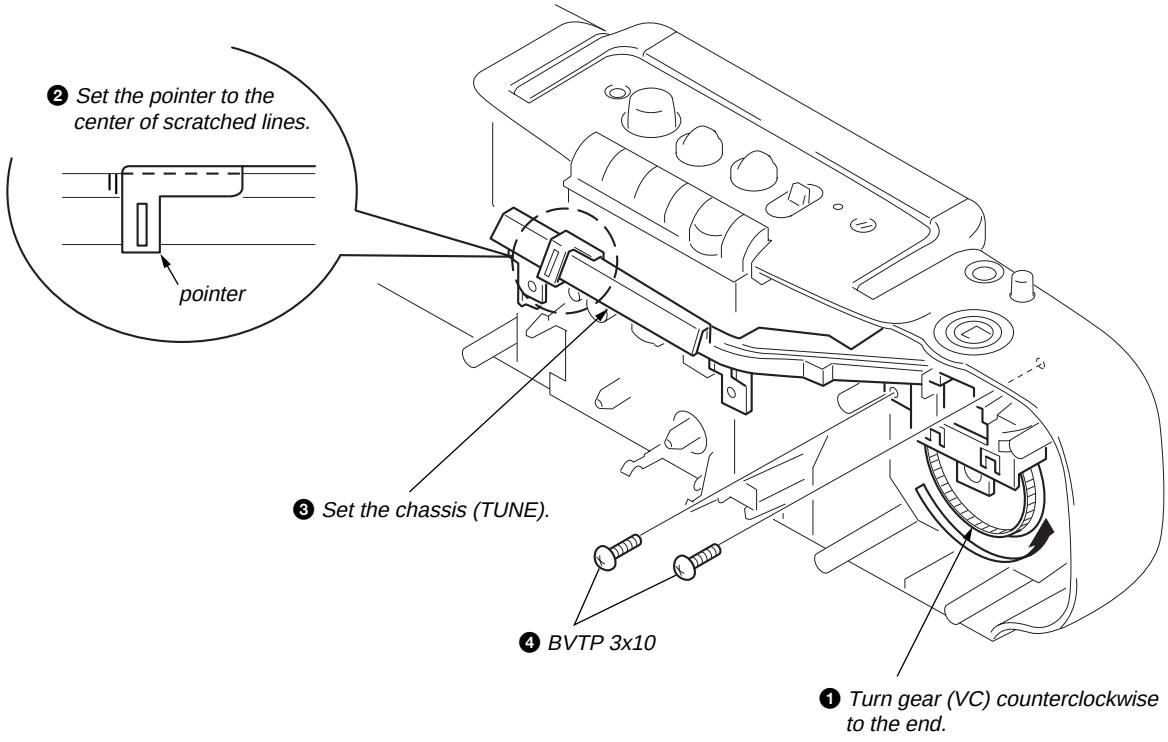
2-4. TUNER, AC, SECOND BOARD



2-5. AUDIO, MICROPHONE, ISS BOARD



2-6. DIAL POINTER SETTING


❷ Set the pointer to the center of scratched lines.
pointer
❸ Set the chassis (TUNE).
❹ BVTP 3x10
❶ Turn gear (VC) counterclockwise to the end.

SECTION 3
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab :
   record/playback head — pinch roller
   erase head — rubber belts
   capstan — idlers
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Mode	Torque meter	Meter reading
Forward	CQ-102C	25 – 60 g • cm (0.35 – 0.83 oz • inch)
Forward back tension	CQ-102C	1 – 5 g • cm (0.014 – 0.069 oz • inch)
Fast Forward	CQ-201B	55 – 140 g • cm (0.76 – 1.94 oz • inch)
Rewind	CQ-201B	55 – 140 g • cm (0.76 – 1.94 oz • inch)

Tape Tension Measurement

Mode	Tension meter	Meter reading
Forward	CQ-403A	more than 170 g (more than 6.00 oz)

SECTION 4
ELECTRICAL ADJUSTMENTS

4-1. TAPE RECORDER SECTION

0 dB = 0.775 V

Standard Output Level

Output terminal	HP OUT
load impedance	32 Ω
output signal level	0.25 V (–10 dB)

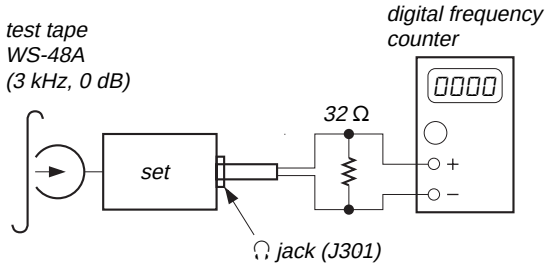
Test Tape

Type	Signal	Used for
WS-48A	3 kHz, 0 dB	tape speed adjustment
P-4-A063	6.3 kHz, –10 dB	head azimuth adjustment

Tape Speed Adjustment

Procedure:

Mode: playback



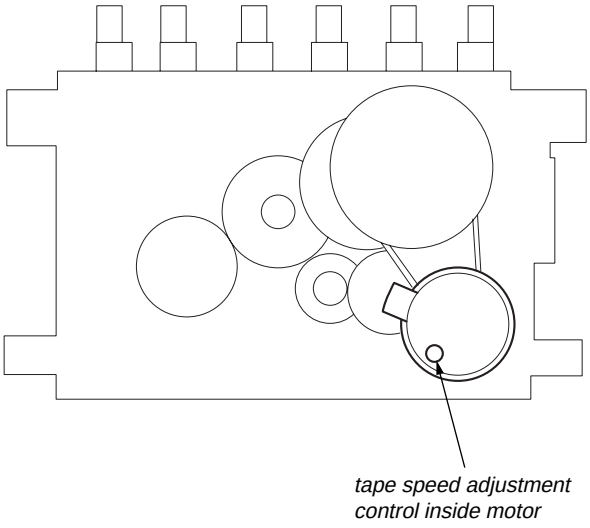
Adjust so that the value on the digital frequency counter is 3,000 Hz.

Specification Value:

Digital frequency counter
2,970 – 3,030 Hz

Adjust so that the frequency at the beginning and that at the end of tape winding are between 2,955 to 3,045 Hz.

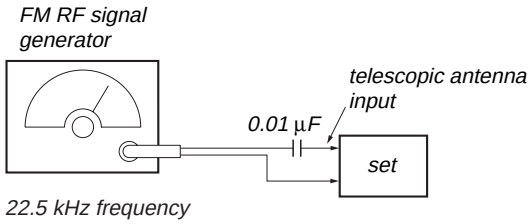
Adjustment Location:



4-2. TUNER SECTION **0 dB = 1 µV**

- **FM Section**

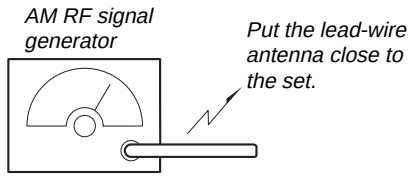
Setting:
BAND switch: FM



22.5 kHz frequency deviation by 400 Hz signal output level : as low as possible

- **MW/LW Section**

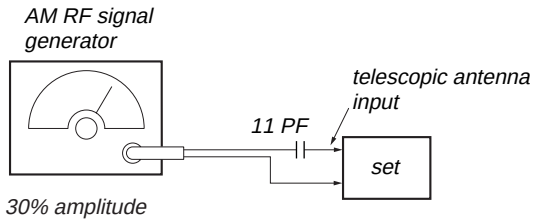
Setting:
BAND switch: MW or LW



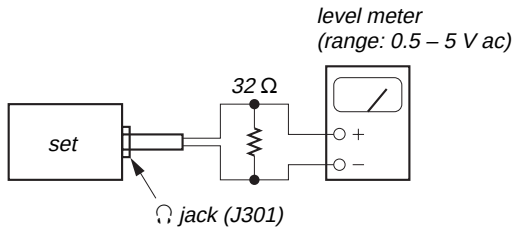
30% amplitude modulation by 400 Hz signal output level : as low as possible

- **SW Section**

Setting:
BAND switch: SW
FINE TUNE control: mechanical mid



30% amplitude modulation by 400 Hz signal output level : as low as possible



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.
- Remove telescopic antenna in FM section adjustments.

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L2	CT2
64 MHz	109.5 MHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L1	CT1
64 MHz	109.5 MHz

FM IF ADJUSTMENT
T1
10.7 MHz

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L3-1	CT3
620 kHz	1,400 kHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L8	CT4
520 kHz	1,680 kHz

AM IF ADJUSTMENT
Adjust for a maximum reading on level meter.
T2
455 kHz

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L4	CT8
145 kHz	300 kHz

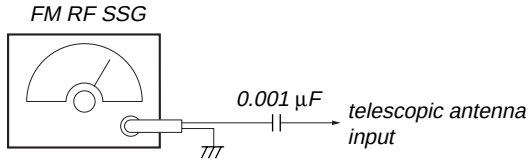
LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L3-2	CT7
160 kHz	260 kHz

SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L6	CT6
5.8 MHz	18.4 MHz

SW TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L5	CT5
5.9 MHz	18.2 MHz

Adjustment Location: See page 10.

FM VCO Adjustment
Setting:

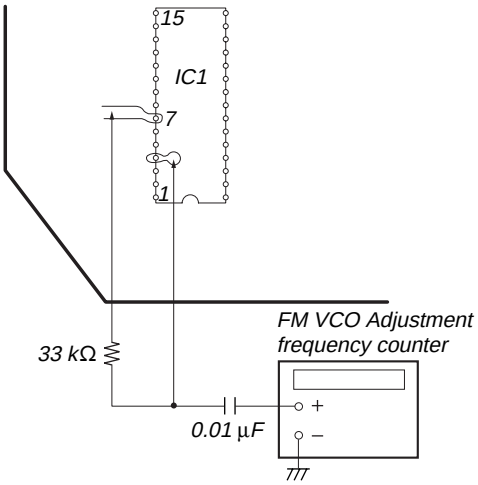


Modulation: no modulation
Output level: 0.1 V (100 dB)

Procedure:
1. Adjust RV1 so that the reading on the frequency counter becomes in 76.0 kHz ± 50 Hz.

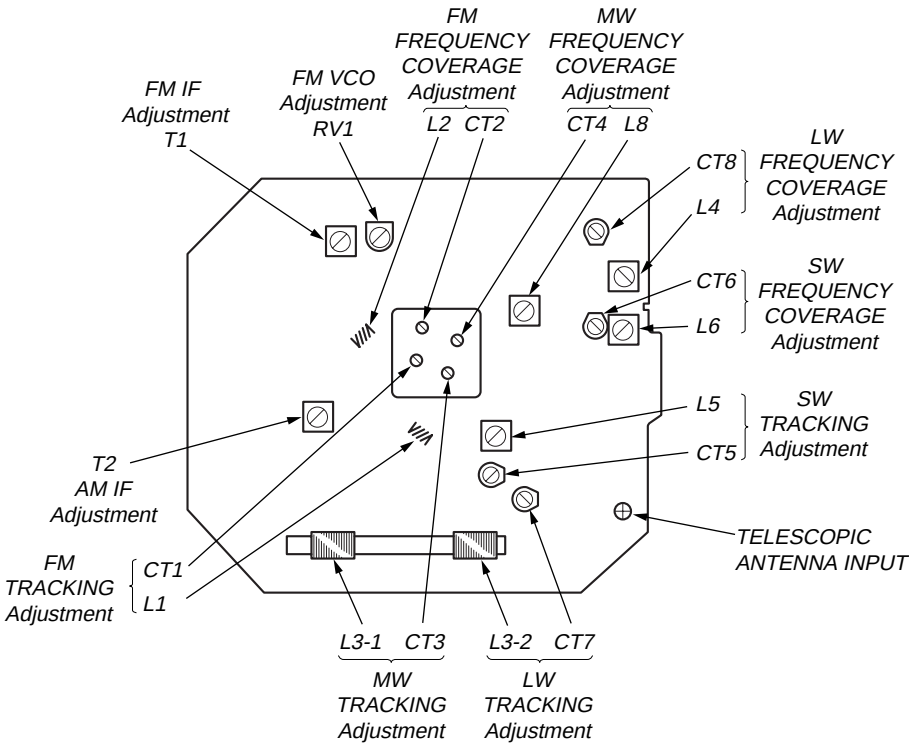
Adjustment Location: tuner board

–tuner board (conductor side)–



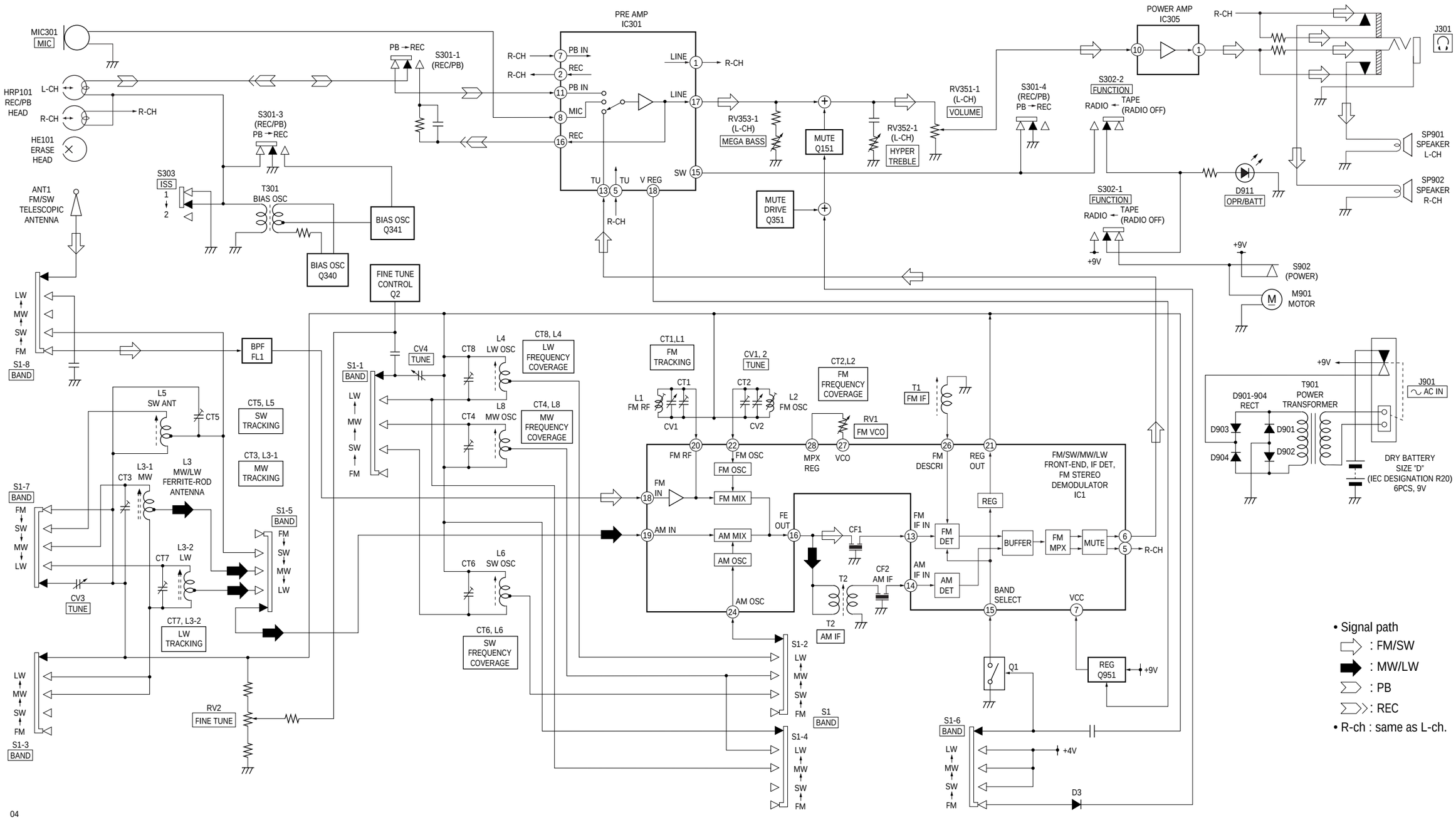
Adjustment Location:

–tuner board (component side)–

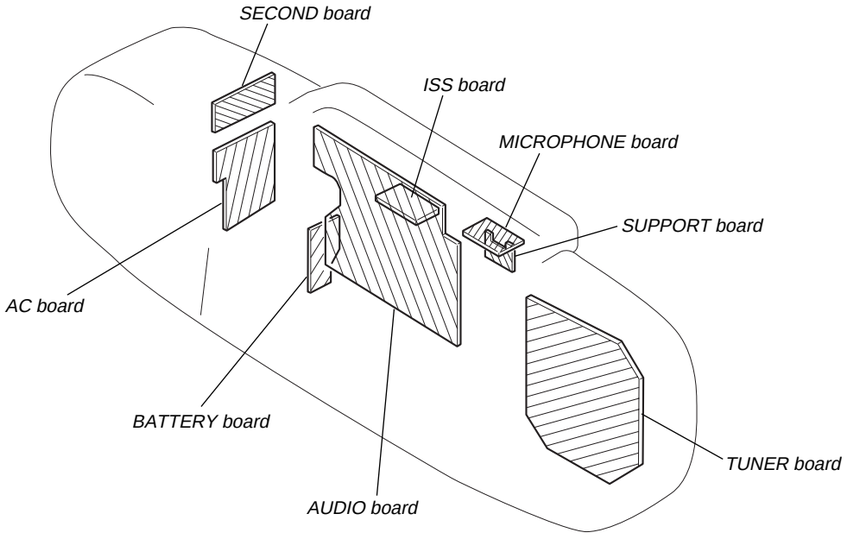


SECTION 5
DIAGRAMS

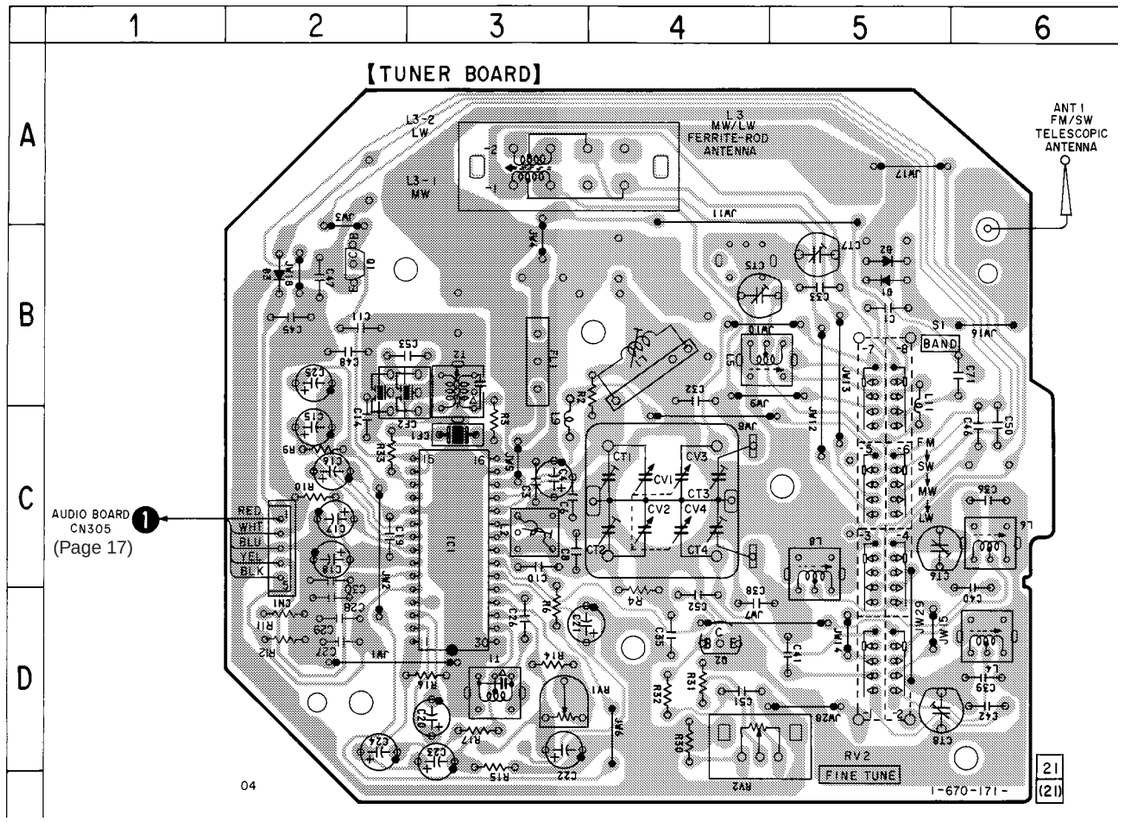
5-1. BLOCK DIAGRAM



5-2. CIRCUIT BOARDS LOCATION

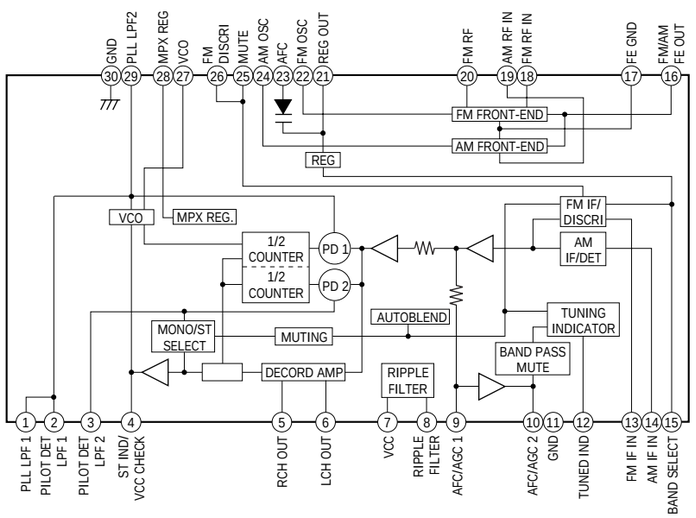


5-3. PRINTED WIRING BOARD — TUNER SECTION —



• **IC Block Diagram**

IC1 CXA1538S

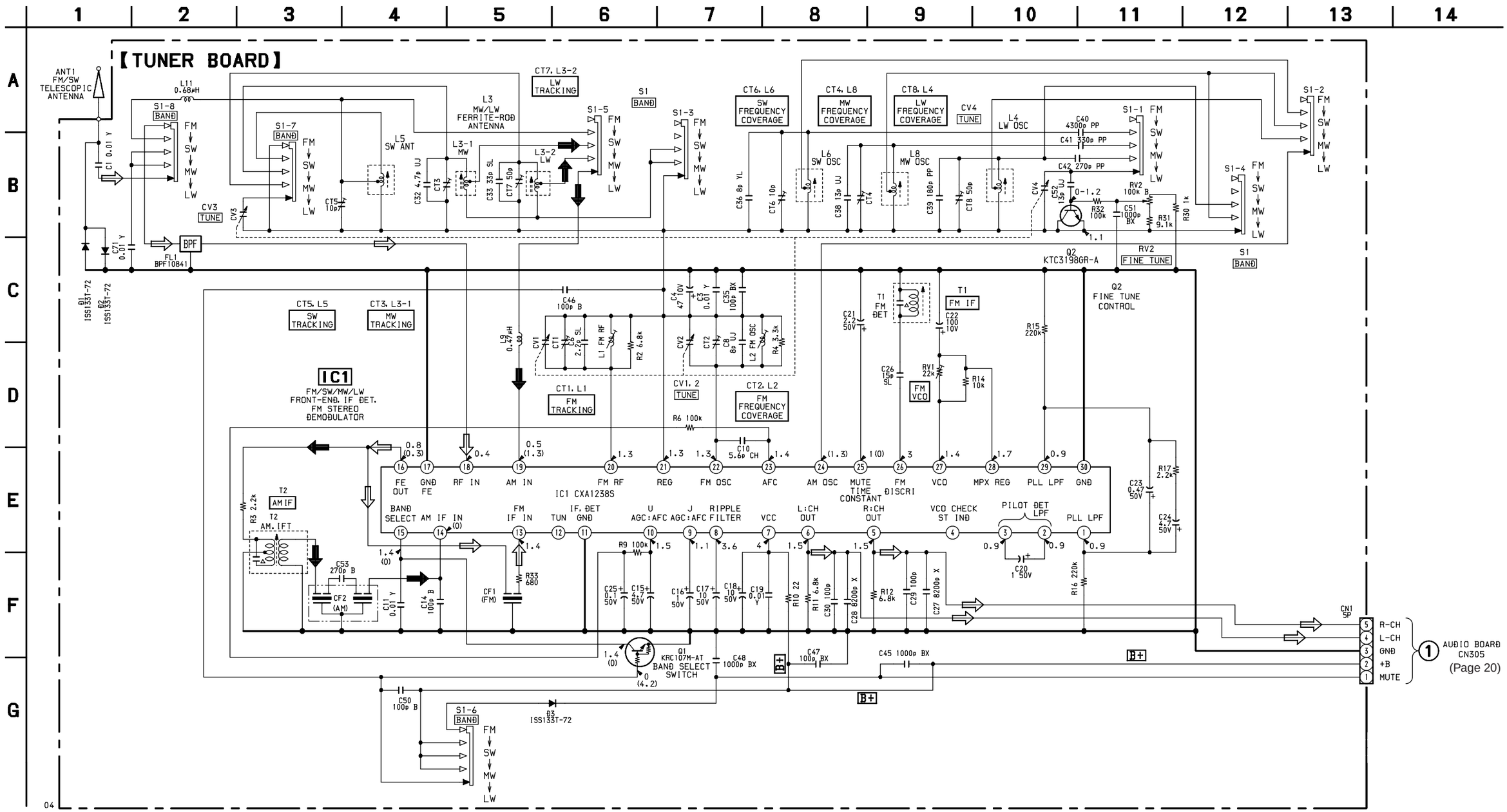


• **Semiconductor Location**

Ref. No.	Location
D1	B-5
D2	B-5
D3	B-2
IC1	C-3
Q1	B-2
Q2	D-4

Note:
- ——o—— : parts extracted from the component side.
- ▒▒▒▒ : Pattern from the side which enables seeing.

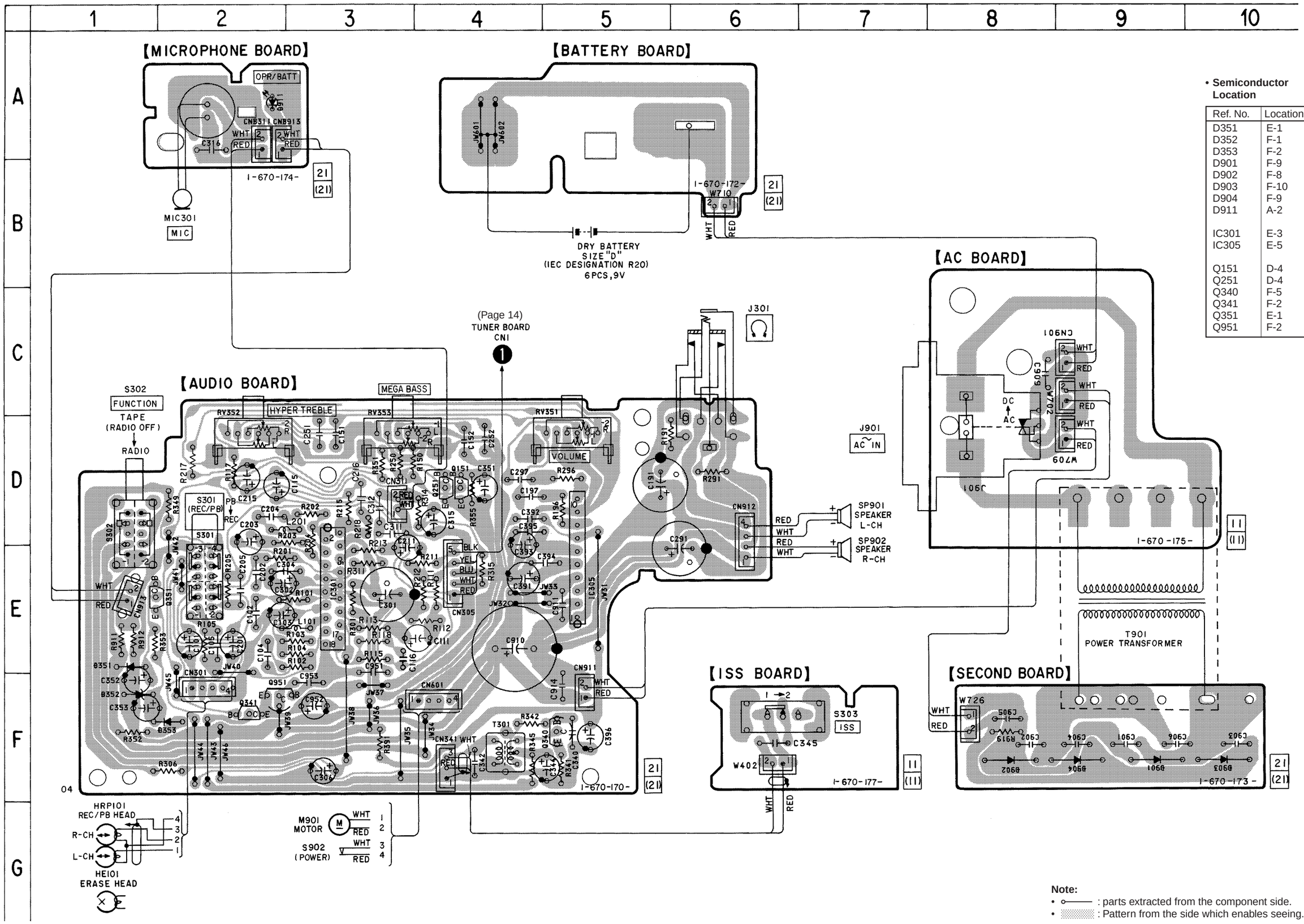
5-4. SCHEMATIC DIAGRAM — TUNER SECTION — • Refer to page 13 for IC Block Diagram.



Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.
- B + : B+ Line.
- ▬ : adjustment for repair.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltage is dc with respect to ground under no-signal (detuned) condition.
  no mark : FM
  ( ) : MW/LW, SW
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM/SW
  ➡ : MW/LW

5-5. PRINTED WIRING BOARDS — MAIN SECTION — • Refer to page 13 for Circuit Boards Location.

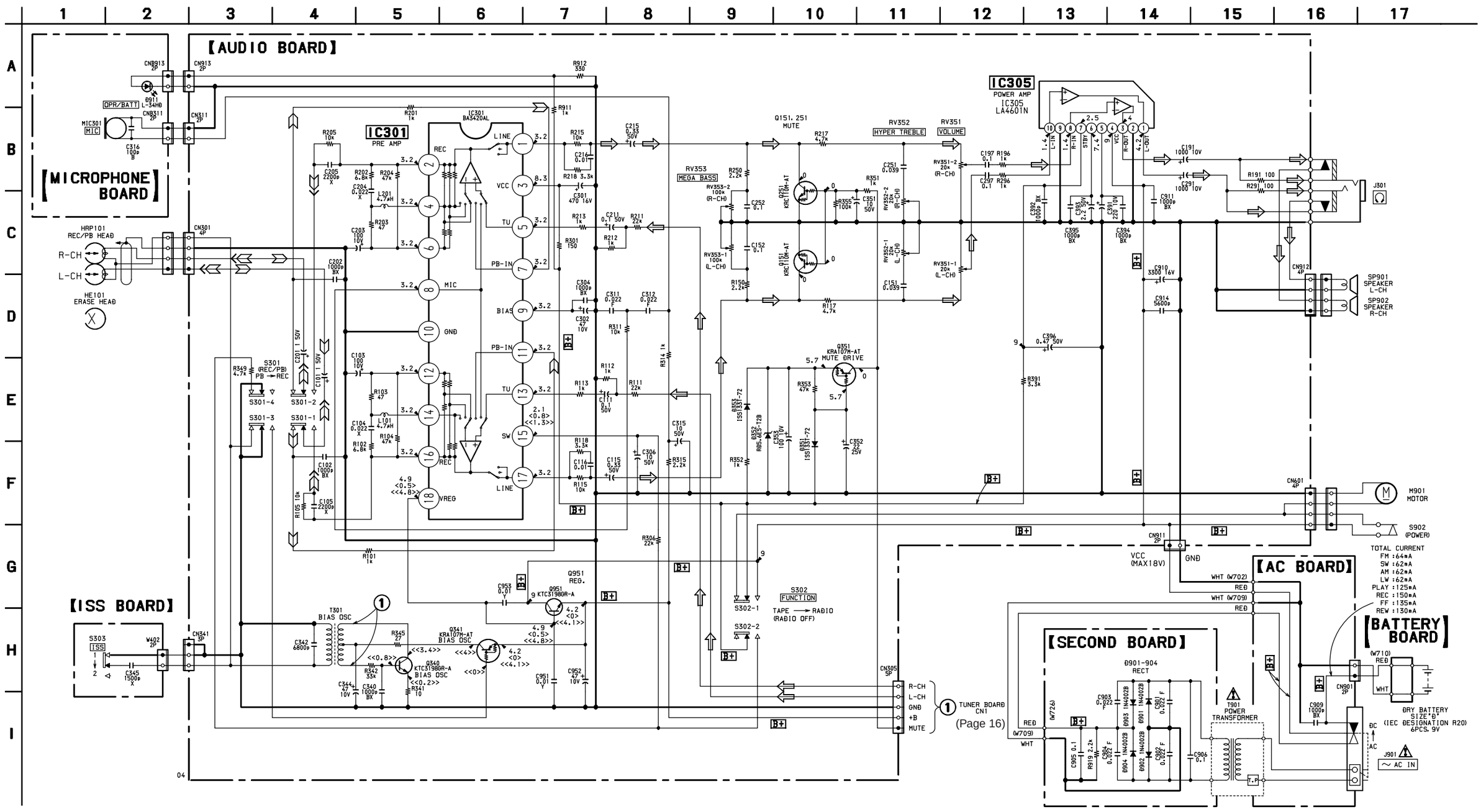


• **Semiconductor Location**

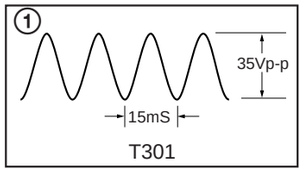
Ref. No.	Location
D351	E-1
D352	F-1
D353	F-2
D901	F-9
D902	F-8
D903	F-10
D904	F-9
D911	A-2
IC301	E-3
IC305	E-5
Q151	D-4
Q251	D-4
Q340	F-5
Q341	F-2
Q351	E-1
Q951	F-2

Note:
• ○—— : parts extracted from the component side.
• ▒▒ : Pattern from the side which enables seeing.

5-6. SCHEMATIC DIAGRAM — MAIN SECTION —



• **Waveform** (MODE:REC)



Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- ▭ : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ : B+ Line.
- Total current is measured with no cassette installed.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  < > : PB
  << >> : REC

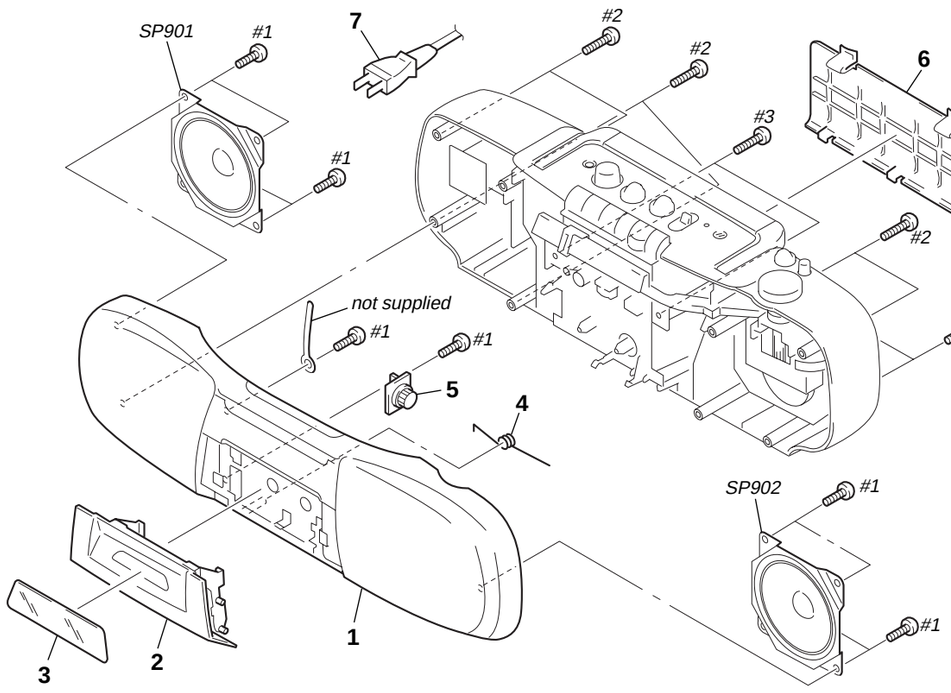
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  Σ : PB
  Σ» : REC

SECTION 6
EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Accessories and packing materials and hardware (# mark) list are given in the last of this parts list.

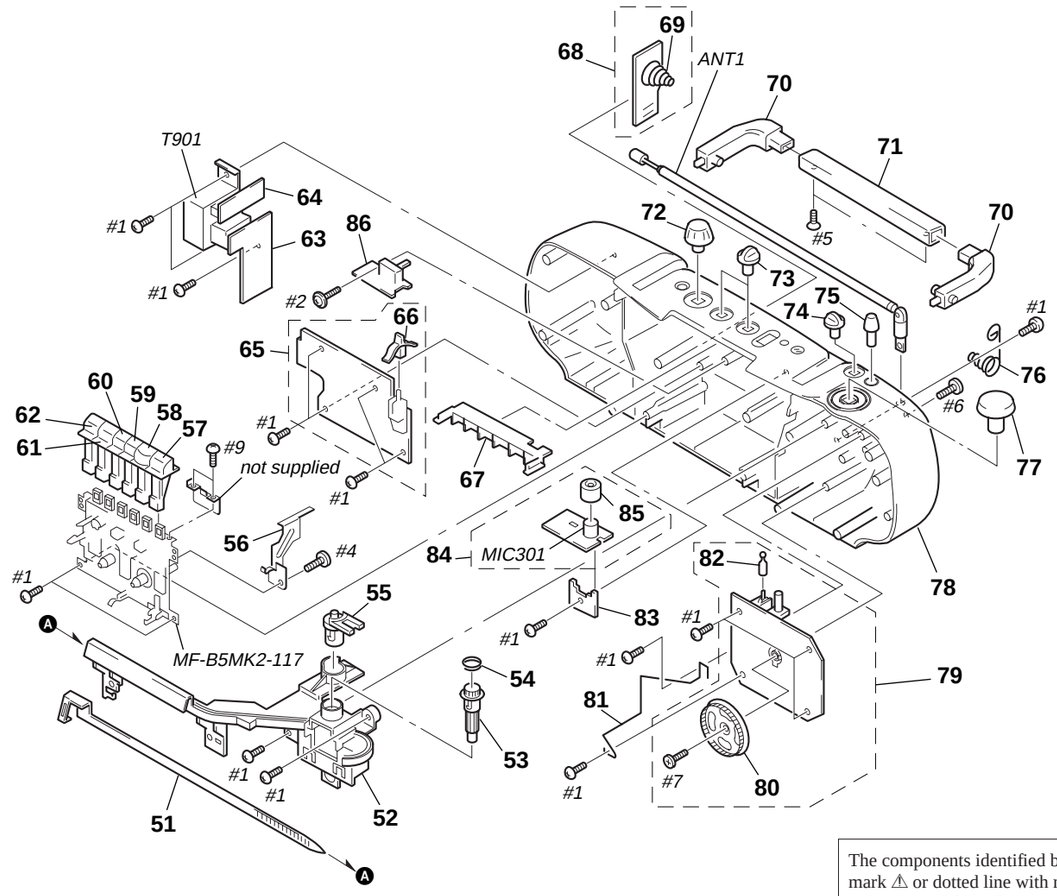
The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

6-1. CABINET (FRONT) SECTION



Ref. No.	Part No.	Description	Remark
1	X-3375-698-1	CABINET (FRONT) SUB ASSY (B)	
2	3-025-531-01	LID, CASSETTE	
3	3-025-552-01	WINDOW (CASSETTE)	
4	3-025-555-01	SPRING (CASSETTE)	
5	3-922-112-31	DAMPER	
6	3-917-646-01	LID, BATTERY CASE	
⚠7	1-769-412-11	CORD, POWER	
SP901	1-505-955-11	SPEAKER (10cm) (L-CH)	
SP902	1-505-955-11	SPEAKER (10cm) (R-CH)	

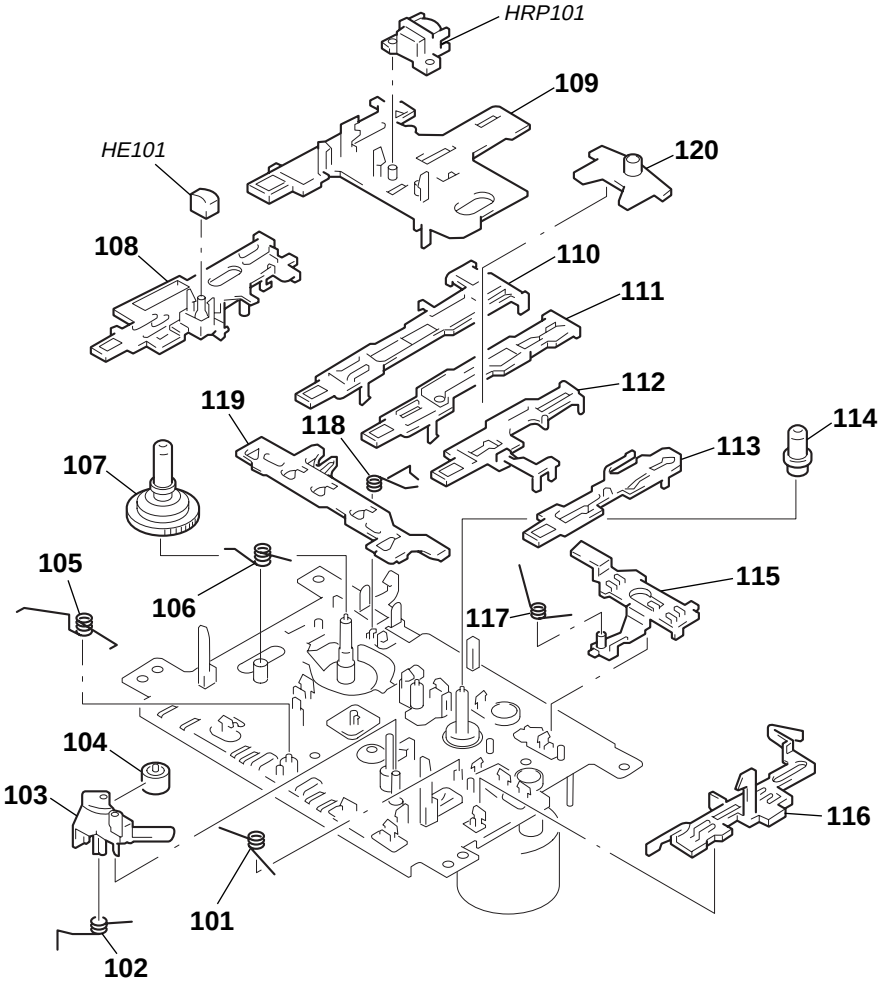
6-2. CABINET (REAR) SECTION



The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

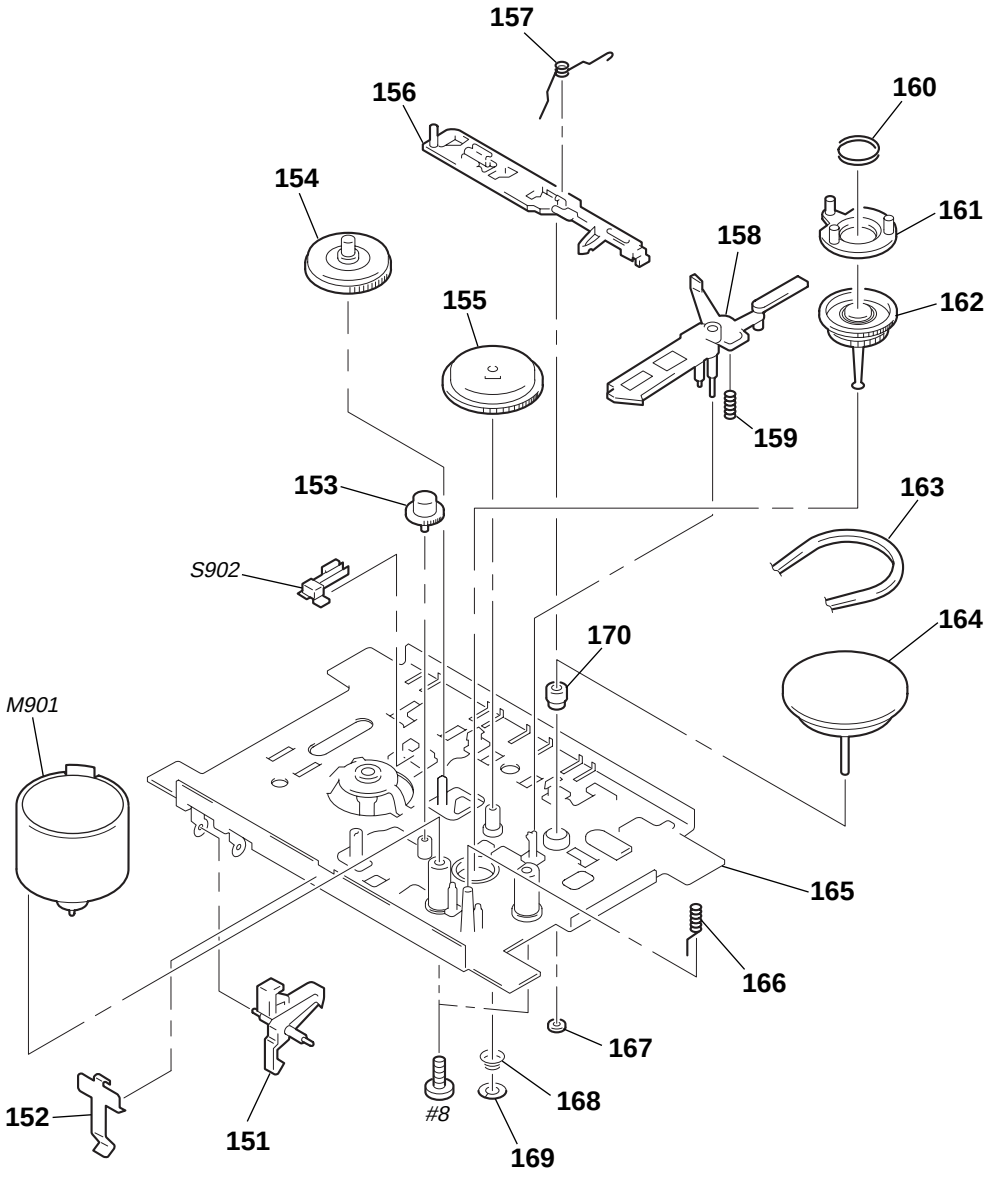
Ref. No.	Part No.	Description	Remark
51	3-025-530-01	POINTER	
52	3-025-529-01	CHASSIS (TUNE)	
53	3-025-545-01	SHAFT (TUNE)	
54	3-025-560-01	SPRING (TU)	
55	3-025-546-01	SHAFT (FUNCTION)	
56	3-025-556-01	SPRING, REC	
57	3-025-534-01	BUTTON (REC)	
58	3-025-537-01	BUTTON (PLAY)	
59	3-025-536-01	BUTTON (REW)	
60	3-025-535-01	BUTTON (FF)	
61	3-025-538-01	BUTTON (STOP)	
62	3-025-533-01	BUTTON (PAUSE)	
* 63	1-670-175-11	AC BOARD	
* 64	1-670-173-21	SECOND BOARD	
* 65	A-3321-332-A	AUDIO BOARD, COMPLETE	
66	3-025-541-01	LEVER (FUNCTION)	
* 67	3-025-550-01	CHASSIS (MD)	
* 68	1-670-172-21	BATTERY BOARD	
69	3-025-557-01	TERMINAL (–), BATTERY	
70	3-025-548-01	HANDLE (SIDE)	
71	3-025-549-01	HANDLE (C)	
72	3-025-539-01	KNOB (VOL)	
73	3-025-540-01	KNOB (TONE)	
74	3-025-542-01	KNOB (FUNCTION)	
75	3-025-544-01	KNOB (FINE)	
76	3-029-701-01	SPRING (+–), TERMINAL COIL	
77	3-025-543-01	KNOB (TUNE)	
78	3-025-528-01	CABINET (REAR)	
* 79	A-3321-335-A	TUNER BOARD, COMPLETE	
80	3-025-547-01	GEAR (VC)	
81	3-025-559-01	TERMINAL, ANTENNA	
82	3-025-551-01	CAP (FUNCTION)	
* 83	1-670-176-11	SUPPORT BOARD	
* 84	1-670-174-21	MICROPHONE BOARD	
* 85	3-911-281-01	CUSHION, MIC	
* 86	1-670-177-11	ISS BOARD	
ANT1	1-501-918-21	ANTENNA, TELESCOPIC	
MIC301	1-542-118-11	MICROPHONE, ELECTRET CONDENSER (MIC)	
⚠T901	1-431-917-11	TRANSFORMER, POWER	

6-3. TAPE MECHANISM DECK SECTION (1)
(MF-B5MK2-117)



Ref. No.	Part No.	Description	Remark
101	3-933-010-01	SPRING (S/P), TORSION	
102	3-933-025-01	SPRING (P), TORSION	
103	3-933-026-01	LEVER (P)	
104	3-933-024-01	ROLLER, PINCH	
105	3-933-019-01	SPRING (F/R), TORSION	
106	3-933-028-01	SPRING (FWD), TORSION	
107	3-933-016-01	GEAR (S REEL)	
108	3-008-590-01	SLIDER (REC)	
109	3-008-592-01	BASE (H), HEAD	
* 110	3-008-588-01	SLIDER (REW)	
* 111	3-008-589-13	SLIDER (FF)	
* 112	3-008-587-01	SLIDER (STOP)	
* 113	3-008-591-01	SLIDER (PAUSE)	
114	3-933-004-01	CLAW, REEL	
* 115	3-933-021-01	SLIDER (FRP)	
* 116	3-933-006-01	SLIDER (EJECT)	
117	3-934-833-01	SPRING (FRP)	
118	3-022-794-02	SPRING (BT)	
119	3-933-007-01	PLATE, LOCK	
* 120	3-012-114-01	LEVER (FR)	
HE101	1-543-876-11	HEAD (ERASE)	
HRP101	1-500-454-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	

6-4. TAPE MECHANISM DECK SECTION (2)
(MF-B5MK2-117)



Ref. No.	Part No.	Description	Remark
151	3-933-029-01	LEVER, ERASING PREVENTION	
152	3-933-182-01	SPRING, CASSETTE	
153	3-932-995-01	GEAR (MID)	
154	X-3371-667-1	CLUTCH ASSY	
155	3-932-997-01	GEAR (CAM)	
* 156	3-932-999-01	SLIDER (SW)	
157	3-932-998-01	SPRING (GROUND), TORSION	
158	3-009-648-01	LEVER (S.OFF)	
159	3-939-383-02	SPRING, COMPRESSION	
160	3-009-650-02	SPRING (K), COMPRESSION	
161	3-936-438-01	LEVER (K)	

Ref. No.	Part No.	Description	Remark
162	X-3373-572-1	REEL ASSY (N), T	
163	3-933-020-01	BELT	
164	X-3372-924-1	FLYWHEEL ASSY	
165	3-932-993-01	CHASSIS, OUTSERT	
166	3-937-760-01	SPRING (GROUND), COMPRESSION	
167	3-343-358-01	RING, RETAINING	
168	3-933-005-01	SPRING (CAM), COMPRESSION	
169	3-016-349-01	WASHER	
170	3-934-336-01	BEARING	
M901	A-3320-446-A	MOTOR ASSY	
S902	1-762-679-11	SWITCH, LEAF (POWER)	

SECTION 7
ELECTRICAL PARTS LIST

AC AUDIO

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	1-670-175-11	AC BOARD			
		*********			
		< CAPACITOR >			
C909	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< CONNECTOR >			
* CN901	1-691-573-11	PIN, CONNECTOR (PC BOARD) 2P			
		< AC INLET >			
⚠J901	1-526-838-11	INLET, AC 2P (~ AC IN)			
**********					
*	A-3321-332-A	AUDIO BOARD, COMPLETE			
		**********			
	3-025-541-01	LEVER (FUNCTION)			
		< CAPACITOR >			
C101	1-124-903-11	ELECT	1uF	20%	50V
C102	1-162-294-31	CERAMIC	0.001uF	10%	50V
C103	1-124-443-00	ELECT	100uF	20%	10V
C104	1-162-843-11	CERAMIC	0.022uF	10%	16V
C105	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C111	1-126-956-11	ELECT	0.1uF	20%	50V
C115	1-124-252-00	ELECT	0.33uF	20%	50V
C116	1-162-306-11	CERAMIC	0.01uF	30%	16V
C151	1-136-160-00	FILM	0.039uF	5%	50V
C152	1-136-165-00	FILM	0.1uF	5%	50V
C191	1-124-473-11	ELECT	1000uF	20%	10V
C197	1-136-165-00	FILM	0.1uF	5%	50V
C201	1-124-903-11	ELECT	1uF	20%	50V
C202	1-162-294-31	CERAMIC	0.001uF	10%	50V
C203	1-124-443-00	ELECT	100uF	20%	10V
C204	1-162-843-11	CERAMIC	0.022uF	10%	16V
C205	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C211	1-126-956-11	ELECT	0.1uF	20%	50V
C215	1-124-252-00	ELECT	0.33uF	20%	50V
C216	1-162-306-11	CERAMIC	0.01uF	30%	16V
C251	1-136-160-00	FILM	0.039uF	5%	50V
C252	1-136-165-00	FILM	0.1uF	5%	50V
C291	1-124-473-11	ELECT	1000uF	20%	10V
C297	1-136-165-00	FILM	0.1uF	5%	50V
C301	1-126-941-11	ELECT	470uF	20%	16V

Ref. No.	Part No.	Description			Remark
C302	1-104-664-11	ELECT	47uF	20%	10V
C304	1-162-294-31	CERAMIC	0.001uF	10%	50V
C306	1-124-907-11	ELECT	10uF	20%	50V
C311	1-161-494-00	CERAMIC	0.022uF		25V
C312	1-161-494-00	CERAMIC	0.022uF		25V
C315	1-124-907-11	ELECT	10uF	20%	50V
C340	1-162-294-31	CERAMIC	0.001uF	10%	50V
C342	1-130-481-00	MYLAR	0.0068uF	5%	50V
C344	1-104-664-11	ELECT	47uF	20%	10V
C351	1-124-907-11	ELECT	10uF	20%	50V
C352	1-126-233-11	ELECT	22uF	20%	50V
C353	1-124-443-00	ELECT	100uF	20%	10V
C391	1-104-666-11	ELECT	220uF	20%	10V
C392	1-162-294-31	CERAMIC	0.001uF	10%	50V
C393	1-126-961-11	ELECT	2.2uF	20%	50V
C394	1-162-294-31	CERAMIC	0.001uF	10%	50V
C395	1-162-294-31	CERAMIC	0.001uF	10%	50V
C396	1-124-902-00	ELECT	0.47uF	20%	50V
C910	1-126-944-11	ELECT	3300uF	20%	16V
C911	1-162-294-31	CERAMIC	0.001uF	10%	50V
C914	1-136-683-11	FILM	0.0056uF	5%	100V
C951	1-162-306-11	CERAMIC	0.01uF	30%	16V
C952	1-104-664-11	ELECT	47uF	20%	10V
C953	1-162-306-11	CERAMIC	0.01uF	30%	16V
		< CONNECTOR >			
CN301	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
* CN305	1-568-271-11	SOCKET, CONNECTOR 5P			
* CN311	1-573-287-11	HOLDER, CABLE 2P			
* CN341	1-691-574-11	PIN, CONNECTOR (PC BOARD) 3P			
CN601	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
* CN911	1-691-573-11	PIN, CONNECTOR (PC BOARD) 2P			
CN912	1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P			
* CN913	1-573-287-11	HOLDER, CABLE 2P			
		< DIODE >			
D351	8-719-911-19	DIODE 1SS133T-72			
D352	8-719-123-54	DIODE RD5.6ES-T2B			
D353	8-719-911-19	DIODE 1SS133T-72			
		< IC >			
IC301	8-759-978-54	IC BA3420AL			
IC305	8-759-543-56	IC LA4601N			

AUDIO | BATTERY | ISS | MICROPHONE

Ref. No.	Part No.	Description			Remark
		< JACK >			
J301	1-566-891-11	JACK (🎧)			
		< COIL >			
L101	1-410-324-11	INDUCTOR	4.7uH		
L201	1-410-324-11	INDUCTOR	4.7uH		
		< TRANSISTOR >			
Q151	8-729-036-80	TRANSISTOR	KRC110M-AT		
Q251	8-729-036-80	TRANSISTOR	KRC110M-AT		
Q340	8-729-036-89	TRANSISTOR	KTC3198GR-A		
Q341	8-729-037-34	TRANSISTOR	KRA107M-AT		
Q351	8-729-037-34	TRANSISTOR	KRA107M-AT		
Q951	8-729-036-89	TRANSISTOR	KTC3198GR-A		
		< RESISTOR >			
R101	1-249-417-11	CARBON	1K	5% 1/4W	
R102	1-249-427-11	CARBON	6.8K	5% 1/4W	
R103	1-249-401-11	CARBON	47	5% 1/4W	
R104	1-249-437-11	CARBON	47K	5% 1/4W	
R105	1-249-429-11	CARBON	10K	5% 1/4W	
R111	1-249-433-11	CARBON	22K	5% 1/4W	
R112	1-249-417-11	CARBON	1K	5% 1/4W	
R113	1-249-417-11	CARBON	1K	5% 1/4W	
R115	1-249-429-11	CARBON	10K	5% 1/4W	
R117	1-249-425-11	CARBON	4.7K	5% 1/4W	
R118	1-247-843-11	CARBON	3.3K	5% 1/4W	
R150	1-249-421-11	CARBON	2.2K	5% 1/4W	
R191	1-247-807-11	CARBON	100	5% 1/4W	
R196	1-249-417-11	CARBON	1K	5% 1/4W	
R201	1-249-417-11	CARBON	1K	5% 1/4W	
R202	1-249-427-11	CARBON	6.8K	5% 1/4W	
R203	1-249-401-11	CARBON	47	5% 1/4W	
R204	1-249-437-11	CARBON	47K	5% 1/4W	
R205	1-249-429-11	CARBON	10K	5% 1/4W	
R211	1-249-433-11	CARBON	22K	5% 1/4W	
R212	1-249-417-11	CARBON	1K	5% 1/4W	
R213	1-249-417-11	CARBON	1K	5% 1/4W	
R215	1-249-429-11	CARBON	10K	5% 1/4W	
R217	1-249-425-11	CARBON	4.7K	5% 1/4W	
R218	1-247-843-11	CARBON	3.3K	5% 1/4W	
R250	1-249-421-11	CARBON	2.2K	5% 1/4W	
R291	1-247-807-11	CARBON	100	5% 1/4W	
R296	1-249-417-11	CARBON	1K	5% 1/4W	
R301	1-249-407-11	CARBON	150	5% 1/4W	
R306	1-249-433-11	CARBON	22K	5% 1/4W	
R311	1-249-429-11	CARBON	10K	5% 1/4W	
R314	1-249-417-11	CARBON	1K	5% 1/4W	
R315	1-249-421-11	CARBON	2.2K	5% 1/4W	
R341	1-249-393-11	CARBON	10	5% 1/4W	
R342	1-249-435-11	CARBON	33K	5% 1/4W	

Ref. No.	Part No.	Description			Remark
R345	1-249-398-11	CARBON	27	5% 1/4W	
R349	1-249-425-11	CARBON	4.7K	5% 1/4W	
R351	1-249-417-11	CARBON	1K	5% 1/4W	
R352	1-249-417-11	CARBON	1K	5% 1/4W	
R353	1-249-437-11	CARBON	47K	5% 1/4W	
R355	1-249-441-11	CARBON	100K	5% 1/4W	
R391	1-247-843-11	CARBON	3.3K	5% 1/4W	
R911	1-249-417-11	CARBON	1K	5% 1/4W	
R912	1-249-411-11	CARBON	330	5% 1/4W	
		< VARIABLE RESISTOR >			
RV351	1-225-638-11	RES, VAR, CARBON	20K/20K (VOLUME)		
RV352	1-225-639-11	RES, VAR, CARBON	20K/20K (HYPER TREBLE)		
RV353	1-225-640-11	RES, VAR, CARBON	100K/100K (MEGA BASS)		
		< SWITCH >			
S301	1-571-472-11	SWITCH, SLIDE (REC/PB)			
S302	1-570-729-11	SWITCH, LEVER SLIDE (FUNCTION)			
		< TRANSFORMER >			
T301	1-433-268-00	TRANSFORMER, BIAS OSCILLATOR			
**********					
*	1-670-172-21	BATTERY BOARD			
		**********			
	3-025-557-01	TERMINAL (–), BATTERY			
**********					
*	1-670-177-11	ISS BOARD			
		**********			
		< CAPACITOR >			
C345	1-162-301-11	CERAMIC	0.0015uF	20% 16V	
		< SWITCH >			
S303	1-771-370-11	SWITCH, SLIDE (ISS)			
**********					
*	1-670-174-21	MICROPHONE BOARD			
		**********			
*	3-911-281-01	CUSHION, MIC			
		< CAPACITOR >			
C316	1-162-282-31	CERAMIC	100PF	10% 50V	
		< DIODE >			
D911	8-719-059-97	LED L-34HD (OPR/BATT)			
		< MICROPHONE >			
MIC301	1-542-118-11	MICROPHONE, ELECTRET CONDENSER (MIC)			
**********					

Ref. No.	Part No.	Description			Remark
*	1-670-173-21	SECOND BOARD			
		**********			
		< CAPACITOR >			
C901	1-101-005-00	CERAMIC	22000PF		50V
C902	1-101-005-00	CERAMIC	22000PF		50V
C903	1-101-005-00	CERAMIC	22000PF		50V
C904	1-101-005-00	CERAMIC	22000PF		50V
C905	1-136-165-00	FILM	0.1uF	5%	50V
C906	1-136-165-00	FILM	0.1uF	5%	50V
		< DIODE >			
D901	8-719-063-79	DIODE 1N4002B			
D902	8-719-063-79	DIODE 1N4002B			
D903	8-719-063-79	DIODE 1N4002B			
D904	8-719-063-79	DIODE 1N4002B			
		< RESISTOR >			
R919	1-249-421-11	CARBON	2.2K	5%	1/4W
**********					
*	1-670-176-11	SUPPORT BOARD			
		**********			
**********					
*	A-3321-335-A	TUNER BOARD, COMPLETE			
		**********			
	3-025-547-01	GEAR (VC)			
	3-025-551-01	CAP (FUNCTION)			
	7-621-770-67	SCREW +B 2.6X6			
		< CAPACITOR >			
C1	1-162-306-11	CERAMIC	0.01uF	30%	16V
C3	1-162-306-11	CERAMIC	0.01uF	30%	16V
C4	1-104-664-11	ELECT	47uF	20%	10V
C6	1-162-191-31	CERAMIC	2.2PF	10%	50V
C8	1-102-945-00	CERAMIC	8PF	0.5PF	50V
C10	1-162-196-31	CERAMIC	5.6PF	10%	50V
C11	1-162-306-11	CERAMIC	0.01uF	30%	16V
C14	1-162-282-31	CERAMIC	100PF	10%	50V
C15	1-126-963-11	ELECT	4.7uF	20%	50V
C16	1-124-903-11	ELECT	1uF	20%	50V
C17	1-124-907-11	ELECT	10uF	20%	50V
C18	1-124-907-11	ELECT	10uF	20%	50V
C19	1-162-306-11	CERAMIC	0.01uF	30%	16V
C20	1-124-903-11	ELECT	1uF	20%	50V
C21	1-126-961-11	ELECT	2.2uF	20%	50V
C22	1-124-443-00	ELECT	100uF	20%	10V
C23	1-124-902-00	ELECT	0.47uF	20%	50V
C24	1-126-963-11	ELECT	4.7uF	20%	50V
C25	1-126-956-11	ELECT	0.1uF	20%	50V
C26	1-162-203-31	CERAMIC	15PF	5%	50V
C27	1-161-050-00	CERAMIC	0.0082uF	10%	16V

Ref. No.	Part No.	Description			Remark
C28	1-161-050-00	CERAMIC	0.0082uF	10%	16V
C29	1-162-282-31	CERAMIC	100PF	10%	50V
C30	1-162-282-31	CERAMIC	100PF	10%	50V
C32	1-162-195-31	CERAMIC	4.7PF	10%	50V
C33	1-162-211-31	CERAMIC	33PF	5%	50V
C35	1-162-282-31	CERAMIC	100PF	10%	50V
C36	1-102-945-00	CERAMIC	8PF	0.5PF	50V
C38	1-162-202-31	CERAMIC	13PF	5%	50V
C39	1-104-729-11	FILM	180PF	5%	100V
C40	1-136-307-11	FILM	0.0043uF	5%	100V
C41	1-136-355-11	FILM	330PF	5%	100V
C42	1-104-731-11	FILM	270PF	5%	100V
C45	1-162-294-31	CERAMIC	0.001uF	10%	50V
C46	1-162-282-31	CERAMIC	100PF	10%	50V
C47	1-162-282-31	CERAMIC	100PF	10%	50V
C48	1-162-294-31	CERAMIC	0.001uF	10%	50V
C50	1-162-282-31	CERAMIC	100PF	10%	50V
C51	1-162-294-31	CERAMIC	0.001uF	10%	50V
C52	1-162-202-31	CERAMIC	13PF	5%	50V
C53	1-162-287-31	CERAMIC	270PF	10%	50V
C71	1-162-306-11	CERAMIC	0.01uF	30%	16V
		< FILTER >			
CF1	1-760-738-61	FILTER, CERAMIC			
CF2	1-567-670-11	FILTER, CERAMIC			
		< CONNECTOR >			
CN1	1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P			
		< VARIABLE CAPACITOR >			
CT1-4	1-151-710-11	CAP, VAR			
CV1-4	1-151-710-11	CAP, VAR (TUNE)			
		< TRIMMER >			
CT5	1-141-486-11	CAP, ADJ	10PF		
CT6	1-141-486-11	CAP, ADJ	10PF		
CT7	1-141-260-00	CAP, TRIMMER	50PF		
CT8	1-141-260-00	CAP, TRIMMER	50PF		
		< DIODE >			
D1	8-719-911-19	DIODE 1SS133T-72			
D2	8-719-911-19	DIODE 1SS133T-72			
D3	8-719-911-19	DIODE 1SS133T-72			
		< BPF >			
FL1	1-239-831-11	FILTER, BAND PASS			
		< IC >			
IC1	8-752-050-20	IC CXA1538S			

TUNER

Ref. No.	Part No.	Description			Remark
		< COIL >			
L1	1-416-838-11	COIL, AIR-CORE			
L2	1-416-851-11	COIL, AIR-CORE			
L3	1-754-001-21	ANTENNA, FERRITE-ROD (MW/LW)			
L4	1-406-252-11	COIL (OSC)			
L5	1-402-596-11	COIL (ANT)			
L6	1-406-280-11	COIL (OSC)			
L8	1-406-253-11	COIL (OSC)			
L9	1-410-750-41	INDUCTOR	0.47uH		
L11	1-414-140-11	INDUCTOR	0.68uH		
		< TRANSISTOR >			
Q1	8-729-036-77	TRANSISTOR	KRC107M-AT		
Q2	8-729-036-89	TRANSISTOR	KTC3198GR-A		
		< RESISTOR >			
R2	1-249-427-11	CARBON	6.8K	5%	1/4W
R3	1-249-421-11	CARBON	2.2K	5%	1/4W
R4	1-247-843-11	CARBON	3.3K	5%	1/4W
R6	1-249-441-11	CARBON	100K	5%	1/4W
R9	1-249-441-11	CARBON	100K	5%	1/4W
R10	1-249-397-11	CARBON	22	5%	1/4W
R11	1-249-427-11	CARBON	6.8K	5%	1/4W
R12	1-249-427-11	CARBON	6.8K	5%	1/4W
R14	1-249-429-11	CARBON	10K	5%	1/4W
R15	1-247-887-00	CARBON	220K	5%	1/4W
R16	1-247-887-00	CARBON	220K	5%	1/4W
R17	1-249-421-11	CARBON	2.2K	5%	1/4W
R30	1-249-417-11	CARBON	1K	5%	1/4W
R31	1-247-854-11	CARBON	9.1K	5%	1/4W
R32	1-249-441-11	CARBON	100K	5%	1/4W
R33	1-249-415-11	CARBON	680	5%	1/4W
		< VARIABLE RESISTOR >			
RV1	1-228-995-00	RES, ADJ, METAL	22K		
RV2	1-225-637-11	RES, VAR, CARBON	100 (FINE TUNE)		
		< SWITCH >			
S1	1-571-147-11	SWITCH, LEVER SLIDE (BAND)			
		< TRANSFORMER >			
T1	1-409-944-11	COIL (DET)			
T2	1-406-952-11	TRANSFORMER, IF			

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
⚠7	1-769-412-11	CORD, POWER	
ANT1	1-501-918-21	ANTENNA, TELESCOPIC	
HE101	1-543-876-11	HEAD (ERASE)	
HRP101	1-500-454-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	
MIC301	1-542-118-11	MICROPHONE, ELECTRET CONDENSER (MIC)	
S902	1-762-679-11	SWITCH, LEAF (POWER)	
SP901	1-505-955-11	SPEAKER (10cm) (L-CH)	
SP902	1-505-955-11	SPEAKER (10cm) (R-CH)	
⚠T901	1-431-917-11	TRANSFORMER, POWER	
		ACCESSORIES & PACKING MATERIALS	
		**********	
	3-862-811-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-862-811-31	MANUAL, INSTRUCTION (RUSSIAN)	
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-685-648-79	SCREW +BVTP 3X12 TYPE2 N-S	
#3	7-685-650-79	SCREW +BVTP 3X16 TYPE2 N-S	
#4	7-685-533-14	SCREW +BTP 2.6X6 TYPE2 N-S	
#5	7-685-248-19	SCREW +KTP 3X12 TYPE2 N-S	
#6	7-682-548-09	SCREW +B 3X8	
#7	7-621-770-67	SCREW +B 2.6X6	
#8	7-621-770-87	SCREW +B 2.6X5	
#9	7-685-851-04	SCREW +BVTT 2X4 (S)	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

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